E29–93a. This procedure has been incorporated by reference. See § 90.7.

(1) Class I-A—nonhandheld equipment engines less than 66 cc in displacement;

(2) Class I-B—nonhandheld equipment engines greater than or equal to 66 cc but less than 100 cc in displacement;

(3) Class I—nonhandheld equipment engines greater than or equal to 100 cc but less than 225 cc in displacement;

(4) Class II—nonhandheld equipment engines greater than or equal to 225 cc in displacement;

(5) Class III—handheld equipment engines less than 20 cc in displacement,

(6) Class IV—handheld equipment engines equal or greater than 20 cc but less than 50 cc in displacement, and

(7) Class V—handheld equipment engines equal to or greater than 50 cc in displacement.

(c) The manufacturer's product line will be divided into groupings of engine families as specified by paragraph (d) of this section.

(d) To be classed in the same engine family, engines must be identical in all of the following applicable respects:

(1) The combustion cycle;

(2) The cooling mechanism;

(3) The cylinder configuration (inline, vee, opposed, bore spacings, and so forth);

(4) The number of cylinders;

(5) The engine class;

(6) The location of valves, where applicable, with respect to the cylinder (e.g. side valves or overhead valves);

(7) The number of catalytic converters, location, volume and composition;

(8) The thermal reactor characteristics;

(9) The fuel required (e.g. gasoline, natural gas, LPG); and

(10) The useful life category.

(e) At the manufacturer's option, engines identical in all the respects listed in paragraph (d) of this section may be further divided into different engine families if the Administrator determines that they may be expected to have different emission characteristics. This determination is based upon the consideration of features such as:

(1) The bore and stroke;

(2) The combustion chamber configuration;

(3) The intake and exhaust timing method of actuation (poppet valve, reed valve, rotary valve, and so forth);

(4) The intake and exhaust valve or port sizes, as applicable;

(5) The fuel system;

(6) The exhaust system; and

(7) The method of air aspiration.

(f) Where engines are of a type which cannot be divided into engine families based upon the criteria listed in paragraph (d) of this section, the Administrator will establish families for those engines based upon the features most related to their emission characteristics.

[60 FR 34598, July 3, 1995, as amended at 64 FR 15239, Mar. 30, 1999; 65 FR 24308, Apr. 25, 2000]

§ 90.117 Certification procedure—test engine selection.

(a) For Phase 1 engines, the manufacturer must select, from each engine family, a test engine that the manufacturer determines to be most likely to exceed the emission standard. For Phase 2 engines, the manufacturer must select, from each engine family, a test engine of a configuration that the manufacturer determines to be most likely to exceed the $HC+NO_X$ ($NMHC+NO_X$) Family Emission Limit (FEL), or $HC+NO_X$ ($NMHC+NO_X$) standard if no FEL is applicable.

(b) The test engine must be constructed to be representative of production engines.

[60 FR 34598, July 3, 1995, as amended at 64 FR 15239, Mar. 30, 1999]

§ 90.118 Certification procedure—service accumulation and usage of deterioration factors.

(a)(1) The test engine must be operated with all emission control systems operating properly for a period sufficient to stabilize emissions.

(2) The period sufficient to stabilize emissions may not exceed 12 hours.

(b) No maintenance, other than recommended lubrication and filter changes, may be performed during service accumulation without the Administrator's approval.

(c) Service accumulation is to be performed in a manner using good engineering judgment to ensure that emissions are representative of production engines.

(d) The manufacturer must maintain, and provide to the Administrator if requested, records stating the rationale for selecting a service accumulation period less than 12 hours and records describing the method used to accumulate hours on the test engine(s).

(e) For purposes of establishing whether Phase 2 engines comply with applicable exhaust emission standards or FELs, the test results for each regulated pollutant as measured pursuant to §90.119 shall be multiplied by the applicable df determined under §90.104 (g) or (h). The product of the two numbers shall be rounded to the same number of decimal places contained in the applicable standard, and compared against the applicable standard or FEL, as appropriate.

[60 FR 34598, July 3, 1995, as amended at 61 FR 20742, May 8, 1996; 64 FR 15239, Mar. 30, 1999]

§90.119 Certification procedure—testing.

(a) *Manufacturer testing.* The manufacturer must test the test engine using the specified test procedures and appropriate test cycle. All test results must be reported to the Administrator.

(1) The test procedure to be used is detailed in Subpart E of this part.

(i) Class I and II engines must use the test cycle that is appropriate for their application. Engines that operate only at intermediate speed must use Test Cycle A, which is described in Table 2 of Appendix A to subpart E of this part. Engines that operate only at rated speed must use Test Cycle B, which is described in Table 2 of Appendix A to subpart E of this part. If an engine family includes engines used in both rated-speed and intermediate-speed applications, the manufacturer must select the duty cycle that will result in worst-case emission results for certification. For any testing after certification, the engine must be tested using the most appropriate test cycle based on the engine's installed governor.

(ii) Class I-A, III, IV, and V engines must use Test Cycle C described in subpart E of this part.

(2) Emission test equipment provisions are described in subpart D of this part.

(b) *Administrator testing.* (1) The Administrator may require that any one or more of the test engines be submitted to the Administrator, at such place or places as the Administrator may designate, for the purposes of conducting emission tests. The Administrator may specify that testing will be conducted at the manufacturer's facility, in which case instrumentation and equipment specified by the Administrator must be made available by the manufacturer for test operations. Any testing conducted at a manufacturer's facility must be scheduled by the manufacturer as promptly as possible.

(2)(i) Whenever the Administrator conducts a test on a test engine, the results of that test will, unless subsequently invalidated by the Administrator, comprise the official data for the engine and the manufacturer's data will not be used in determining compliance with emission standards.

(ii) Prior to the performance of such test, the Administrator may adjust or cause to be adjusted any adjustable parameter of the test engine which the Administrator has determined to be subject to adjustment for certification testing, to any setting within the physically adjustable range of that parameter, to determine whether such engine conforms to applicable emission standards.

(iii) For those engine parameters which the Administrator has not determined to be subject to adjustment for certification testing, the test engine presented to the Administrator for testing will be calibrated within the production tolerances applicable to the manufacturer specification shown on the engine label or in the owner's manual, as specified in the application for certification.

(c) *Use of carryover test data.* In lieu of testing, the manufacturer may submit, with the Administrator's approval, emission test data used to certify substantially similar engine families in previous years. This ''carryover'' test data is only allowable if the data shows